WALLOPS MISSION 2000
1998 Progress Report

1.0 INTRODUCTION

'Wallops Mission 2000' provides a long-term strategic vision for the Goddard Space Flight Center's Wallops Flight Facility (WFF). The Wallops Mission 2000 Implementation Plan was prepared to provide the framework for implementing this new vision. The plan described a Wallops business strategy and addressed both existing and planned initiatives, noting their effect on the Wallops workforce and infrastructure.

References to the Wallops Mission 2000 Implementation Plan will be made throughout this report. It remains a baseline reference guiding activities at Wallops. Information from the plan has been duplicated in this Progress Report only as needed to facilitate the use of this Report on a standalone basis.

1.1 Background

The Wallops Mission 2000 Implementation Plan was 'unveiled' at the WFF on July 21, 1997. It provided a roadmap for implementing the new strategic vision for Wallops. It was designed to accommodate several planned events that would have a major impact on the overall mission of Wallops and on the future of its civil servant and contractor workforce, including:

- The transition of the Sounding Rocket Program to a contractor-implemented approach.
- The transition of mission operations to performance-based contracting.
- The consolidation of NASA aircraft at the Dryden Flight Research Center.

As a result of the major changes being planned for Wallops and the uncertainty concerning their combined effect on the local workforce, a new long-term strategy was developed for Wallops, including a vision that would keep it in the mainstream of the NASA mission and help ensure its stability and vitality in the future.

1.2 Annual Review

The Wallops Mission 2000 Implementation Plan specified that annual reviews be performed to assess progress toward goals, identify 'course corrections', and identify detailed goals for the next fiscal year as well as broader goals for the outyears. A Strategic Planning Retreat was held at Wallops on July 22 - 23, 1998. The retreat was attended by the senior managers from each of the organizations at Wallops. The purpose of the retreat was twofold:

- Take a detailed look at the accomplishments of the past year relative to the goals stated in the Wallops Mission 2000 Implementation Plan.
- Take a strategic look at the future.

During the retreat, each manager discussed the accomplishments, future plans and challenges facing his/her organization.

1.3 Purpose of Progress Report

The purpose of this Progress Report is to document the strategic discussions held during the July 1998 Strategic Planning Retreat. Relative to the Wallops Mission 2000 Implementation Plan, it addresses:

- What we said we were going to do
- What we did and didn't do, and why
- What we plan to do
- Issues

It is intended that this report will include planning data that can be used by each Wallops manager and employee in developing organizational and individual performance plans for FY99. This report will also be utilized by GSFC management to plan and monitor the continued successful implementation of Wallops Mission 2000.

1.4 Scope

The information provided in this Progress Report applies to all of the NASA organizations at Wallops, and it provides a strategic plan for the NASA programs at the Wallops Flight Facility. This report does not replace any other GSFC plans. It is intended that the information included herein be used for planning purposes in integrating the strategic goals of Wallops into appropriate Center and individual organizational plans. It is expected that each organization will prepare Performance Plans as required by their respective management.

The timeframe covered by this report is the one year since the ' unveiling' of the Wallops Mission 2000 Implementation Plan, unless otherwise indicated. In the future, Wallops strategic planning will be done on a fiscal year boundary.

2.0 WALLOPS MISSION 2000 DESCRIPTION

2.1 Vision

The vision for Wallops is as follows:

Wallops Flight Facility will be a national resource for providing low-cost integration, launch, and operation of suborbital and small orbital payloads.

2.2 Mission

The mission of Wallops is as follows:

To further scientific, educational, and economic advancement by providing the facilities and expertise to enable frequent flight opportunities for a diverse customer base.

With a primary focus on integration, launch, and operation of suborbital and small orbital payloads, and on serving as an operational test site for the next generation of low-cost launch technologies, key mission elements will also include enabling the commercial development of space and conducting educational and outreach programs. Key mission elements are as follows:

- Suborbital Program

  Wallops will continue to manage and implement NASA' s Sounding Rocket and Balloon Programs in support of Earth science, space science, and technology. New technologies such as a 100-day balloon capability will be integrated into the programs.

- Low-Cost Orbital Missions

  Wallops will manage and provide technical support for University Class Explorer missions and shuttle small payloads.

- Operational Test Facilities

  Wallops will be a high-fidelity proving ground for enabling the development of next generation low-cost orbital launch technologies.

Wallops will establish partnership arrangements with its Navy tenants and other major users to develop and promote the use of Wallops as an operational test facility.

- Commercial Development and Educational Outreach

  Wallops will promote the development of a commercial orbital launch complex, supporting small- to medium-class launch requirements.

  Wallops will form partnerships with industry and academia to foster educational outreach opportunities.

2.3 Goals

Three general goals were established for Wallops as part of Wallops Mission 2000:

- Wallops will be established as an integral element in achieving NASA' s strategic objectives for scientific and educational excellence through cost-efficient integration, launch, and operations of suborbital and small orbital payloads.

- Wallops will serve as a key facility for operational test, integration, and certification of NASA and commercial next-generation, low-cost orbital launch technologies.

- Wallops will be recognized as a role model for pioneering productive and innovative government, industry, and academic partnerships.

During the 1998 Strategic Planning Retreat, the management team at Wallops recommended the addition of a fourth goal:

- Wallops will identify and develop technologies and capabilities required to support the Wallops Flight Facility as a national resource for integration, launch, operations and enabling functions.

2.4 Assumptions

A number of assumptions were made in preparing the original Implementation Plan. During the Strategic Planning Retreat, these assumptions were reviewed to determine if they were still valid. It was determined that while some of the original timelines had slipped due to circumstances beyond anyone' s control, that the basic intent of the assumptions was still valid.

The following assumptions were made in developing the Wallops business strategy and preparing the Wallops Mission 2000 Implementation Plan:

- The Sounding Rocket and Balloon Program contracts will be performance-based.

- The new sounding rocket performance based contract will be awarded by mid-FY98.

- A 100-day balloon capability will be developed over the next 3 years using civil servants to the maximum extent possible. Civil servants will provide the balloon program development engineering support at Wallops.

- There will be growth in the operational support of Mission to Planet Earth programs (i.e., Remotely Piloted Vehicles (RPV' s) and other activities) at Wallops.

- Wallops will provide complete management of the University Class Explorer (UNEX) Program.

- The management of the Special Projects Office (currently Code 740) will be transitioned to Code 800 along with the management of Get Away Special (GAS), Space Experiment Module (SEM), and Spartan Lite payloads.

- Wallops will play a key role in enabling the development of a commercial launch capability on the launch range to include the establishment of a commercial spaceport venture.

- Wallops will undertake strategic partnerships with existing tenants, other government agencies, and commercial partners using Wallops core infrastructure and expertise as a foundation from which new initiatives may be undertaken. A process of integrated planning, educational outreach, and new business creation will be a part of continuing operations, embedded at all levels of management.

- The airport and airport facilities will be operated on a cost-reimbursable basis.

- Orbital/ground network and range instrumentation and operation will be accomplished through performance-based contracts. Civil servants formerly performing these tasks will be redirected to new NASA programs.

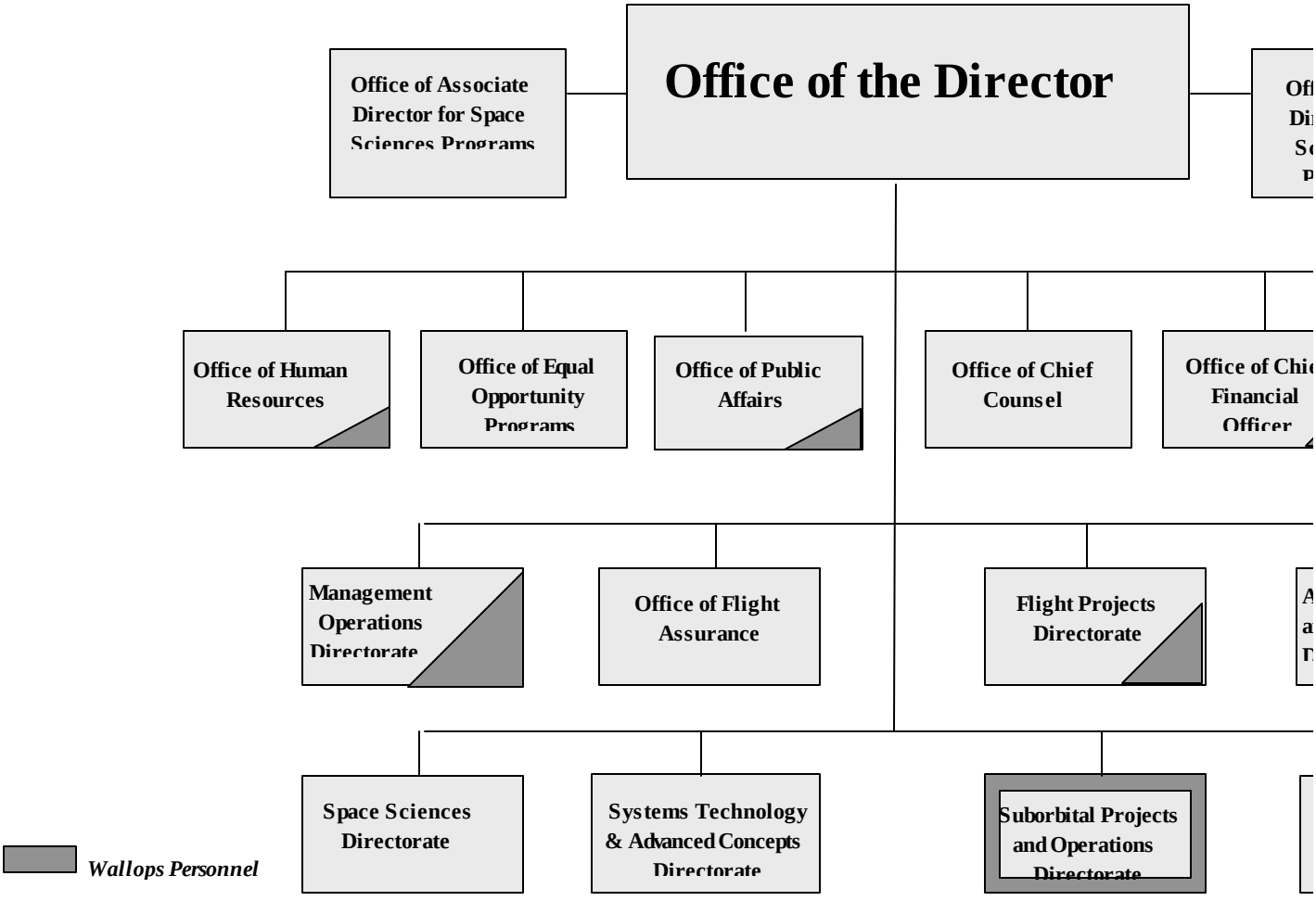
- Wallops will expand its educational outreach activities, including closer ties to regional colleges and universities in Virginia and Maryland, such as Old Dominion University and the University of Maryland Eastern Shore.

3.0 REORGANIZATION

The original Wallops Mission 2000 Implementation Plan required a reorganization of the Wallops workforce in order to more efficiently accomplish the goals of the plan. Since the plan was ‘ unveiled’ in July 1997, the Goddard Space Flight Center (at both Greenbelt and Wallops) underwent a major reorganization, effective December 1997. While the Center reorganization did not effect the numbers of civil servants at Wallops, it did significantly effect the distribution of those employees throughout the various GSFC organizations.

Figure 1 shows those Goddard organizations that have employees physically located at Wallops. Individual organization charts are included in Appendix A. The members of these organizations comprise ‘ Team Wallops’ .

Figure 1: Goddard Space Flight Center Organization



4.0 PROGRAM DESCRIPTIONS

The following sections describe the activities of the programs at Wallops. Each section discusses the original program goals as stated in the Wallops Mission 2000 Implementation Plan, actual accomplishments during the past year, future plans (including key FY99 objectives) and any issues and concerns.

4.1 Sounding Rocket Program Office (Code 810)

4.1.1 Original Goals

The primary goal for the Sounding Rocket Program Office as stated in the Wallops Mission 2000 Implementation Plan was to transition the program to ' a government managed, performance-based, contractor-implemented program' (NSROC). Other goals in addition to this transition effort included:

- Investigate partnerships with DoD to provide total sounding rocket support.
- Enhance student launch opportunities and encourage the use of sounding rockets in educational outreach activities.
- Work with the Virginia Commercial Space Flight Authority (VCSFA) to develop sounding rocket related educational projects.
- Advocate science/technology-based Announcements of Opportunity and investigations constrained to utilizing only surplus rocket systems to be launched at Wallops.

4.1.2 Accomplishments

Wallops personnel continued to support the NASA Sounding Rocket Program while implementing the changes associated with the Center reorganization and Wallops Mission 2000. During FY98, Wallops was responsible for successfully launching 21 sounding rockets (a 100% success rate) from five locations in the United States and Europe. Additionally,

- Contractor proposals were analyzed for the performance-based sounding rocket contract (NSROC).
- New agreements were put in place with two DOD organizations for sounding rocket support.
- One undergraduate sounding rocket payload was launched and three more were supported.
- The Suborbital Student Experiment Module (Sub-SEM) Sounding Rocket concept, including a facility for students in grades K-12, was developed. The first launch, with participation by five student experiment groups, was conducted in May 1998.
- The "Freespace" concept was developed, which permits small add-on packages developed by academic institutions to be flown on a space available basis on sounding rockets. A demonstration package was flow in November 1997.

4.1.3 Future Plans

The transition to a performance-based, contractor-implemented sounding rocket program will be completed with the contractor selection in early FY99. Other plans include:

- Enhance and expand the student involvement programs mentioned above, and work with the Virginia Commercial Space Flight Authority and other organizations to provide additional student opportunities using surplus rocket systems launched at Wallops.
- Continue to work DOD/NASA partnerships for complete sounding rocket support.
- Conduct 36 sounding rocket missions from five locations in the United States and Europe during FY99.

4.1.4 Issues/Concerns

Issues and concerns for the Sounding Rocket Program include:

- Assuring a high flight rate under constrained budgets after the NSROC award.
- Assuring adequate resources for technology improvements.
- Streamlining the processing of external agreements for reimbursable customers in order to meet critical schedules.

4.2 Balloon Program Office (Code 820)

4.2.1 Original Goals

The Wallops Mission 2000 Implementation Plan identified the following goals for the Balloon Program Office:

- Continue to manage scientific balloon research activities.
- Transition to a performance-based contract using government-owned facilities in Palestine, TX, Ft. Sumner, NM and Wallops Island, VA.
- Develop an Advanced Long Duration Balloon (ALDB) capability.
- Investigate partnerships concerning balloon technologies with the Joint Weapons Warfare Center and the United States Air Force.
- Identify opportunities for partnering with other NASA centers for planetary exploration.

4.2.2 Accomplishments

While initiating a major research and development effort, the Balloon Program Office achieved a 96% balloon success rate and 85% mission success rate for 26 flights from seven locations worldwide in FY98. Additionally,

- A new performance-based contract was awarded 3/1/98.
- The ALDB initiative was renamed the Ultra Long Duration Balloon (ULDB). Significant progress has been realized on the ULDB development. Reviews for mission definition and systems definition were conducted, and prime and backup payloads were selected for the first mission. Contracts were awarded to evaluate balloon vendor capabilities and to develop a trajectory simulation tool. The new Cryo Cooling system flew its maiden flight on an Alaskan Long Duration Balloon (LDB). Meetings with NASA HQ Code I and the State Department have occurred to address international overflight and to prevent technology transfer issues.
- Actively supported the Student Launch Balloon Program, and the preparation and evaluation of UNEX proposals.
- Participated in discussions/workshops with JPL concerning the MARS Project, aimed at using balloon technology to facilitate soft landings on Mars.
- Successfully conducted three undergraduate student balloon missions in FY98.

4.2.3 Future Plans

Future plans for the Balloon Program Office include:

- Continued development of a ULDB capability. A PDR is scheduled for November 1998.
- Continued activities in the areas of technology development and educational outreach.
- Continued collaborations with JPL on the MARS Project.
- Thirty-eight balloon missions from six locations worldwide are scheduled in FY99.

4.2.4 Issues/Concerns

Issues and concerns for the Balloon Program Office include:

- Limited staffing availability to meet requirements for the ULDB development plan.
- The lack of additional programmatic and travel funding in support of the ULDB and MARS/new technology development efforts.

4.3 Aircraft Office (Code 830)

4.3.1 Original Goals

The Wallops Mission 2000 Implementation Plan identified the following goals for the Aircraft Office:

- Implement a new performance-based contract for aircraft services at Wallops.
- Transfer underutilized aircraft and enter into partnerships to share the costs of aircraft such as the launch range support aircraft.
- Consolidate the Wallops aircraft and support personnel in the N-159 Hangar in FY98 and make the vacated D1 hangar available for reimbursable activities or mothball it.
- Reduce contract support personnel from 28 to 24.

4.3.2 Accomplishments

The Aircraft Office flew scientific missions worldwide, supporting earth science, space shuttle and range projects. During FY98, four aircraft flew 553 hours in project support. Additionally,

- The procurement process for a new performance-based contract began.
- The UH-1H and one C-130 were transferred.
- The remaining C-130 and the T-39 were not excessed because of programmatic requirements.
- An informal partnership with NAWC Patuxent River was initiated to share the costs of the F-27 range support aircraft.
- Wallops aircraft and support personnel were relocated/consolidated in the N-159 hangar in December 1997, making the D-1 hangar available for future reimbursable activities.

4.3.3 Future Plans

Future plans for the Aircraft Office include:

- Implement a new performance-based contract for aircraft services at Wallops by April 1999.
- Transfer the T-39.
- Enter into a formal agreement with NAWC Patuxent River to share costs for the F-27 aircraft.
- Reduce support service contractor manpower as programmatic requirements permit.

4.3.4 Issues/Concerns

While the Aircraft Office continues to meet heavy project requirements, there are a number of issues, including:

- Limited civil servant and contractor staffing availability for piloting, aircraft maintenance, and mission management.

- Limited funding available for the F-27 range support aircraft. Customer charges and funding received from NAWC Patuxent River should adequately cover expenses for FY99, but a longer term plan is needed.
- Aircraft operations at Wallops is not well defined under Wallops Mission 2000. An Aircraft Office mission statement is needed.
- Employee morale continues to decline as a result of questions concerning the stability of aircraft projects at Wallops.

4.4 Range and Mission Management Office (Code 840)

4.4.1 Original Goals

The Range and Mission Management Office has the dual responsibility of providing project management in support of most SPOD flight projects and of managing the Wallops Test Range, including the fixed and mobile launch ranges and research airport. Additional key goals as defined in Wallops Mission 2000 included:

- Supporting the emerging operational needs of the Virginia Commercial Space Flight Authority (VCSFA) as they establish launch customers.
- Pursuing efforts which would allow an increase in the number of NASA sounding rocket launches at Wallops.
- Increasing the reimbursable customer base to help generate revenue necessary for sustaining and modernizing range systems.
- Studying efforts to leverage technology to enhance services and reduce costs.
- Phasing civil servant instrumentation operators into NASA research and development activities in preparation for the new CSOC contract.
- Pursuing both a program management and operational support role for Unpiloted Aerial Vehicles (UAVs) in support of NASA Earth Science programs. The program management role would involve Wallops providing a brokering service between scientists and commercial UAV providers. Additionally, Wallops would promote operational support to government and commercial UAV programs.

4.4.2 Accomplishments

During FY98, the Range and Mission Management Office accomplished the following:

- Supported numerous NASA rocket, balloon, and aircraft projects from several different field centers.
- Increased NASA sounding rocket and balloon launches at Wallops, principally in support of the growth of educational missions. Two student sounding rocket and two balloon missions were launched this year.
- Acquired mission management responsibilities for Wallops aircraft projects.
- Provided mobile range launch support for sounding rocket missions conducted from Norway and Puerto Rico.
- Launched two commercial Pegasus ELVs for the Orbital Sciences Corporation.
- Supported numerous DoD reimbursable launch range and research aircraft projects, including the BMDO and Navy (ACSC, NSWC, and NAWC Patuxent River).
- Added several new projects, including operations with the Army Aberdeen Test Center that recently launched 54 projectiles at Wallops. This partnership is growing toward a sustained long-term relationship.
- Provided operational support for a new NRL UAV.
- Initiated steps to modernize the Range Control Center computer systems and implement the use of GPS for tracking.

- HQ, Dryden, and Greenbelt representatives met to define roles and responsibilities for supporting NASA UAV requirements.

Also during FY98, several studies were initiated that will impact the future of the Test Range, including:

- A team was established to study launch range needs, workload, funding, and management issues.
- An aerial recovery study team was established to identify funding, schedule, and technical issues required to reestablish this capability at Wallops.

4.4.3 Future Plans

Future plans for the Range and Mission Management Office include:

- Continued efforts to expand the Wallops Test Range customer base within NASA, DoD, and in cooperation with the VSFC.
- Development of a range resources plan and a range modernization plan.
- Formation of a team that will study ways to increase NASA Sounding Rocket launches from Wallops.
- Completion of the aerial recovery study.
- Development of a strategy for assuring adequate funding for the Test Range as a result of Full Cost Accounting and budget reductions.
- Development of the ability to work more efficiently in developing business and partnerships through increased facility autonomy.
- Tailoring resource office processes and products necessary to support a customer-focused operation. Modifications are targeted for the airport fee structure, the test range cost estimation process, and an enhancement of project cost tracking and control processes.
- Schedule UAV operations at Wallops for both NASA and reimbursable payloads in FY99.

4.4.4 Issues/Concerns

Major concerns identified for the Range and Mission Management Office include:

- Securing necessary and sustained funding in the near term for facility modernization and continuing operation as a result of declining operations and institutional budgets.
- Assuring that the historical budget used to manage the Test Range is not lost as a result of reallocation to flight projects under Full Cost Accounting. Wallops management intends to pursue continued block-funding through NASA Headquarters.
- The ability to expeditiously process reimbursable funding in order to begin work. A study team is presently pursuing a streamlined approach.
- Assuring the availability of adequate manpower to manage the expected project requirements.
- Assuring adequate resources to sustain the F-27 range support aircraft.
- Assuring that all NASA organizations recognize and support the Wallops Test Range role defined in Wallops Mission 2000 as an operational test site for scientific missions and development of next generation launch technologies.

4.5 University Class Projects Office (Code 850)

4.5.1 Original Goals

The Wallops Mission 2000 Implementation Plan called for Wallops to assume the program management role for the newly established Space Science University Explorers program. Currently, this program management role is handled out of the Orbital Projects Office.

4.5.2 Accomplishments

Much of FY98 involved the development of the structure and management processes for the newly established University Explorers (UNEX) program. The Announcement of Opportunity for the first missions was issued in January 1998. Proposals were received in March 1998. Winners were announced in September 1998. Mission review, reporting, and other administrative processes are being developed.

4.5.3 Future Plans

During FY99, mission management of the first two UNEX missions will begin. In addition, the following activities are planned:

- Participate in the planning of the Earth Science counterpart program.
- Continue to work with MSFC and other GSFC organizations in formulating the requirements for the future launch vehicles necessary to support University-class spacecraft.
- Complete the study of aerial recovery, which could ultimately lead to University-class microgravity spacecraft that would be recovered from orbit.
- Support transition to UNES.

4.5.4 Issues/Concerns

A key element of a successful University Class program is low-cost access to space. University Class projects are presently challenged by the lack of an affordable Expendable Launch Vehicle (ELV). Present ELV costs preclude a high mission frequency. Ultimately, low-cost access to space is necessary to ensure vigorous small satellite programs.

4.6 Spartan and Shuttle Small Payloads Projects Offices (Codes 860 & 870)

4.6.1 Original Goals

The Wallops Mission 2000 Implementation Plan identified the Shuttle payload area as one in which Wallops could apply its unique expertise. In support of this, the following goals were identified:

- Transfer civil servants at Greenbelt providing mission development and management for the Shuttle Small Payloads and Spartan Projects to the Suborbital Projects and Operations Directorate (Code 800), under the leadership of a senior Greenbelt manager who will report to Directorate management.
- Transfer mission implementation responsibility for the Get Away Special (GAS) and Space Experiment Module (SEM) efforts to Wallops.
- Conduct a phased transition of Spartan Lite mission implementation responsibility to Wallops.

4.6.2 Accomplishments

Thirty-four Hitchhiker and GAS payloads were carried on-orbit aboard 6 Shuttle missions, along with a single Spartan mission, during the past year. Additionally, considerable progress was made in meeting the Wallops Mission 2000 goals, including:

- The Wallops Shuttle team (based in Greenbelt) participated as a proposed partner with a total of 10 external PI groups who each submitted a proposal in response to one of several NASA AO's.
- Work was started on three DOD/NASA development efforts for Spartan and Hitchhiker.

- Management responsibility for Spartan and Shuttle Small Payloads efforts was successfully transitioned to Code 800 in the December 1997 GSFC reorganization. Two Project offices were created (Spartan/Code 860 and Shuttle Small Payloads/Code 870), and they operated at Greenbelt with a Greenbelt-based Assistant Director.
- A GAS Mission Manager was identified at Wallops. Hands-on training activities for several Wallops technical personnel was accomplished.
- A SEM Mission Manager was identified (but later transferred to other work areas at Wallops).
- SEM transition activities were accomplished with OJT and unforeseen launch opportunities. Wallops personnel were able to identify local experiment groups to provide experiments and help fill a ' spur of the moment' SEM mission opportunity. This effort culminated in the successful flight of SEM-05 on STS-91. Wallops personnel actively participated in several SEM technical pre- and post-flight activities, most notably the recent de-integration of SEM-05 at Wallops in July 1998. A SEM carrier system (both mechanical and electronics portions) is currently being fabricated at Wallops.
- GAS flight and ground equipment was shipped to Wallops for additional hands-on training and use with both GAS and SEM.
- Wallops personnel attended Spartan Lite reviews at Greenbelt.
- GAS, SEM, and Safety personnel underwent Shuttle safety training.

4.6.3 Future Plans

Plans for next year include full implementation of the GAS transfer to WFF by the end of FY99. GAS/Code M budget plans for FY00 include only limited funds for contractor support, so this transfer must be successfully carried out. The SEM activity will continue to increase at Wallops.

When a Spartan Lite mission is selected, Wallops personnel will be utilized as team members on the initial mission as it is developed at Greenbelt. For the initial Spartan Lite, electronic and/or mechanical subsystem fabrication will be performed at Wallops consistent with facility and staff capabilities and workload considerations.

4.6.4 Issues/Concerns

Problems and obstacles were encountered during the past year which affected the transition of Shuttle project support to Wallops. These problems were the result of:

- Delays in the implementation of the NSROC contract which slowed availability of Wallops personnel to transition to the Shuttle projects.
- The loss of expected travel funding necessary to support OJT of Wallops personnel at Greenbelt.

Spartan Lite activities at Wallops will continue to be limited until an initial Spartan Lite mission is chosen. GSFC has proposed a total of 9 Spartan Lite missions in response to several NASA OA's. Selection is pending.

4.7 Orbital Tracking Office (Code 452)

4.7.1 Original Goals

The Wallops Mission 2000 Implementation Plan identified the following goals for the orbital tracking activities at Wallops:

- Transition operations, maintenance and sustaining engineering to the performance based Consolidated Space Operations Contract (CSOC) in FY 1998.

- Participate in development studies and contract performance monitoring and reporting.

4.7.2 Accomplishments

The following activities were accomplished:

- CSOC was awarded September 1998. The 90-day contract phase in period will end on December 31, 1998.
- Orbital tracking responsibilities were reorganized into the Ground Network Project Branch of the Flight Projects Directorate.
- Participated in development studies of autonomous tracking systems.
- Led the EOS Phase II ground station requirement study.

4.7.3 Future Plans

Future plans for the Orbital Tracking Office include:

- Continue to be responsible for managing the development and operations of ground systems which support the management and control of the ground-based tracking and data acquisition services.
- Manage the systems planning, systems engineering, requirements analysis, design, implementation, integration, testing, and sustaining engineering of ground network services, including software, hardware, and security.
- Manage project-wide reporting, scheduling, financial management, and configuration management.
- Maintain insight into the quality, improvements, upgrades and modifications of contractor-provided engineering services.

4.7.4 Issues/Concerns

Ground Network Project concerns include:

- Implementation of a 25% reduction in the 314-50 budget by SOMO. This budget supports instrumentation systems sustaining engineering and development activities.
- Increased contractor expenses following CSOC award as a result of the elimination of a significant amount civil servant labor.
- Availability of AETD personnel to support new technology development as a result of competing manpower priorities with other Wallops organizations.

4.8 Observational Science Branch (Code 972)

4.8.1 Original Goals

The Wallops Mission 2000 Implementation Plan indicated that the Observational Science Branch of the Earth Sciences Directorate would continue to conduct strong, on-going research activities into the next century.

4.8.2 Accomplishments

The Observational Science Branch accomplished a number of significant research activities during the past year, including:

- Measurement of rain-generated ring spectra.
- Measurement of rain-induced gas exchange across an air-water surface.
- Completed seven years of airborne Laser Altimetry mapping the Greenland Ice Sheet.

- Completed six years of TOPEX Radar Altimeter operations,.
- Conducted cooperative Airborne Oceanographic LIDAR experiments with the Shirshov Institute of Oceanography (Moscow, Russia).

4.8.3 Future Plans

Future plans for the Observational Science Branch include:

- Research in connection with the TRMM mission.
- Continued TOPEX operations.
- Continued Greenland Ice Sheet mapping research.
- Laser and radar altimetry research in cooperation with NASA Mars missions and NOAA hurricane research respectively.
- Research as part of the MODIS Ocean investigation.
- Preparation of GLAS/ICESAT data reduction software.

4.8.4 Issues/Concerns

The primary concern of the Observation Science Branch is the ability to maintain routine access to low cost airborne platforms for mission support as a result of Agency aircraft cutbacks at Wallops.

5.0 SUPPORT FUNCTIONS

The following sections discuss the activities of the various organizations at Wallops that provide key support to the Wallops Program Offices. These organizations are integral members of ' Team Wallops' . Successful accomplishment of the Wallops mission is not possible without the support these organizations provide.

5.1 Safety Office (Code 803)

5.1.1 Original Goals

The Wallops Mission 2000 Implementation Plan defined the following goals for the Safety Office:

- Transition to a more civil servant oriented safety program.
- Assume new responsibilities related to orbital projects managed by Wallops.

5.1.2 Accomplishments

During FY98, the Safety Office continued to provide safety review and operational support to Wallops flight projects and test range operations. The projects implemented at Wallops were conducted in a manner that protected the general public and participating personnel while minimizing the impact to these activities. The following was accomplished during the past year:

- A new management team was selected and numerous new personnel joined the organization.
- Retraining was a major focus to prepare new Office members for their new responsibilities.
- As a result of the transfer of new orbital project responsibilities to Wallops, Safety Office employees participated in a large amount of formal and on-the-job Shuttle payload safety training evolutions.
- The Wallops safety program was evaluated by a team of NASA Headquarters Safety officials during 1998. This evaluation included project ground and flight safety, launch range

operations, and institutional safety. The finding of this team was that Wallops has a strong, well-implemented safety program.

5.1.3 Future Plans

During FY99, the Safety Office will continue to support the projects managed and implemented at Wallops. Additionally:

- Efforts to fill remaining position vacancies and retraining activities will continue.
- The Safety Office will continue to assume responsibility for and receive training for Shuttle payload projects transitioning to Wallops.

5.1.4 Issues/Concerns

The Safety Office will be challenged to assure adequate project review and support with existing staffing, as the number of NASA and reimbursable projects increase at Wallops.

5.2 Management Operations Directorate (Code 200)

5.2.1 Original Goals

The Management Operations Directorate organizations at Wallops provide institutional services to enable NASA and its partners to effectively accomplish their missions. Responsibilities include overseeing activities related to:

- Environmental, safety and health
- Security
- Program and institutional procurement
- Facilities engineering, construction and maintenance
- Logistic, property and transportation
- Information technology and telecommunication

Specific goals in the Wallops Mission 2000 Implementation Plan associated with these responsibilities included:

- Incorporate performance-based contract (PBC) characteristics.
- Align organizations to effectively meet new challenges.
- Transition to Full Cost Accounting.
- Reduce infrastructure cost by attracting new business, consolidating facilities and optimizing business processes.

5.2.2 Accomplishments

The following activities were successfully accomplished:

- Incorporated PBC features into the Facilities, Engineering, Sounding Rocket, Balloon, Atmospheric Research, Aircraft and Airborne LIDAR contracts.
- Completed a study to merge Information Management and Communications functions into a single organization. The proposed name for the new organization is the Wallops Information Services and Advanced Technology Branch.
- Transferred Safety, Fire and Rescue Services, and NASA 8 functions to the Suborbital Projects and Operations Directorate.
- Assumed responsibility for aircraft fueling operations in the Wallops Logistics Office.

- Reorganized the Wallops Environmental and Security Office, the Wallops Procurement Office, the Facilities Management Branch and the Logistics Office into teams to optimize support.
- Closed the D-1 Hangar and building Z-41.
- Functionally aligned personnel and operations to maximize space utilization in Buildings F-10, F-160, N-159, N-161 and the E-Complex.
- Made major improvements in the WFF Disposal Program that decreased turnaround time and increased revenue.
- Instituted Reliability Centered Maintenance and Energy Management Programs which have reduced operating costs.
- Established a strategic partnership with the Virginia Department of Environmental Quality to determine the most cost-effective way to meet expanding environmental regulations. Similarly, partnerships with construction contractors have been beneficial in optimizing use of limited COF and Center-funded budgets.

5.2.3 Future Plans

In FY-99, the Management Operations Directorate at Wallops will:

- Team with the Policy and Business Relations Office and others to form a New Business Board.
- Develop Energy Performance Contracts to reduce utility costs.
- Negotiate a new Electrical Power Contract.
- Finalize the reorganization of the Information Management and Communication functions.
- Execute the ODIN contract to outsource the ADP functions at the WFF.
- Construct a new Advanced Wastewater Treatment Plant.
- Originate an Environmental Assessment for tree cutting operations.
- Develop a WFF Facilities Master Plan.
- Study/develop a new Consolidated Service Contract to serve multiple Directorates at WFF.
- Perform additional studies/designs to enhance space utilization at Wallops facilities.
- Upgrade beach protection on Wallops Island.
- Fully implement the Advanced Material Management System at Wallops.

5.2.4 Issues/Concerns

The primary concern is with the current trend of reducing capitalization and operating budgets. If this trend continues, the existing infrastructure and institutional services will not keep pace with future programmatic needs, and could jeopardize future operations and business opportunities.

5.3 Office of Human Resources (Code 110)

The Office of Human Resources (Code 113.3) provides personnel support to the programs and workforce at Wallops. The office provides all human resources functions, including providing assistance in the process of filling vacancies and consulting with management on issues covered by collective bargaining agreements.

Wallops Mission 2000 will continue to have a major impact on the activities in the Human Resources Office as positions continue to be advertised and filled, and employees are relocated with the implementation of NSROC and CSOC. The ability of the Human Resources personnel to meet the demands on the office in a timely manner will continue to be a concern in FY1999. In addition, the policy of supporting the various organizations at Wallops resulting from the Goddard reorganization need to be refined.

5.4 Office of Public Affairs (Code 130)

The Wallops Office of Public Affairs (Code 130.4) is responsible for media services, serves as liaison for legislative activities, serves as the Wallops History Office, conducts K-12 educational programs, conducts internal communications activities, coordinates public outreach activities and operates the NASA Visitor Center.

The office supported several major news events during FY98 including the Coqui Dos sounding rocket campaign, East and West Coast beach mapping, the Ultra-Long Duration Balloon Program development efforts, and the Virginia Space Flight Center ribbon-cutting ceremony. In addition, the office issued 26 news releases on Wallops programs and coordinated 17 on-site education programs.

Under Wallops Mission 2000, the office explored commercializing the Visitor Center to reduce costs and contractor personnel. While it was determined that this was not feasible at the time, it is still an option. The office is looking at expanding the exhibits to include the activities of the Wallops partners, which will provide for new exhibit development and reduce NASA costs.

With the addition of orbital and Shuttle payload activities to the Wallops mission and an expected increase in education and launch activities, the office is refocusing its staffing to meet these new initiatives. The clerical position in the office has been eliminated and replaced with a professional slot. In addition, an educator will be working in the office for two years beginning in September 1998. This teacher-on-loan, through the Intergovernmental Personnel Act, will be assigned to Code 130 and will support all Wallops educational initiatives, including conducting teacher and student workshops, supporting student experiment flight opportunities and developing materials for the Wallops home page.

– **Office of the Chief Financial Officer (Code 150)**

In the past year, the reorganization at Wallops has brought many challenges to the Fiscal Office. Additional organizations created the need for appropriate job-order-numbers to be established for funding payroll, simplified travel requisitions and Wallops contracts. The Wallops Fiscal Office team has met the requirements needed to continue support for all programs and the workforce at Wallops. In FY99, we expect to meet the challenges of the agency-wide Integrated Financial Management Project (IFMP) along with the changing needs of the Wallops organizations in order to provide critical information to management and the resource community.

5.6 Policy and Business Relations Office (Code 802)

5.6.1 Original Goals

The Wallops Mission 2000 Implementation Plan directed the Policy and Business Relations Office to:

- Proactively expand the Wallops business base.
- Expand the office charter and provide additional staffing in support of growth in educational activities.
- Develop new resources in support of business development and management.
- Seek out impediments to business development and pursue corrective actions.
- Solicit customer feedback on Wallops performance.
- Update pricing policies for Wallops services.
- Lead efforts to establish a Wallops New Business Board which integrates and focuses business issues across all NASA organizations at Wallops.
- Maintain a database of new business initiatives.
- Conduct meetings with employees to emphasize the increased focus on new business.
- Develop funding requirements necessary for business development and pursue paths for securing necessary resources.

5.6.2 Accomplishments

The Policy and Business Relations Office was active this year. Major accomplishments included:

- Support to Directorate management in numerous cross-cutting areas through committee representation in the areas of Goddard management and project reengineering, institutional costing, budget, education, and employee issues.
- Support to many external organizations who had interest in conducting projects at Wallops.
- Pursuit of a strong role within NASA in support of scientific research aboard Unpiloted Aerial Vehicles.
- Establishing Wallops' role in University-Class spacecraft activities in support of the Space Science and Earth Science Enterprises.
- Management of the growth of the relationship with the Virginia Space Flight Center.
- Fostering growth in educational flight projects and outreach.
- Development of a Memorandum of Understanding with the University of Maryland Eastern Shore to jointly develop and implement educational projects.
- Management of the reengineering of the new Wallops Internet home page which more effectively supports business development.
- Development of several new promotional/marketing documents and exhibit material.

5.6.3 Future Plans

During FY99, the Policy and Business Relations Office expects a continued growth in new business activities. Other major activities are expected to include:

- Continued improvement in business and policy processes, as well as pursuing new strategic interests.
- Implementation of the Wallops New Business Board and New Initiative Database, as well as integration with new processes established by the NSROC and CSOC contractors.
- The conduct of regular discussions with WFF organizations concerning new business issues and processes, most notably the Range and Mission Management and Safety Offices.
- Implementation of improved customer evaluation and corrective action processes.
- Establishment of a stable funding mechanism for the Launch Range and Research Airport.
- Continued development of marketing resources for Wallops services.
- Reengineering of Wallops charging processes for reimbursable activities.
- A renewed Memorandum of Understanding with the U.S. Navy/Patuxent River.

5.6.4 Issues/Concerns

The opportunities to continue improvement of internal processes and pursue new business initiatives are numerous. However, these opportunities are constrained by:

- Limited staffing, travel, and budget resources.
- Availability of project support personnel to study, pursue, and implement proposals or actual new projects. The planned New Business Board will to help set priorities and eliminate candidate work that Wallops can not support due to manpower shortages.

5.7 Applied Engineering and Technology Directorate (AETD)

The Applied Engineering and Technology Directorate (AETD) was formed during the reorganization of the Goddard Space Flight Center, which occurred in December, 1997. Details of the AETD organization were not fully understood at the unveiling of the Wallops Mission 2000 Implementation Plan, therefore were not documented in the plan.

The mission of the AETD is to fulfill the needs of the science community and other customers by providing discipline engineering expertise:

- To conceptualize, develop, and use earth science, space science, and other missions; and
- To advocate and implement a broad spectrum of technology endeavors that support those missions.

The AETD organization is shown in Appendix A. The portions of the AETD which reside at Wallops are highlighted. Five branches are partially located at Wallops, including the Carrier Systems Branch, the Electrical Systems Branch, the Microwave Systems Branch, the Guidance Navigation, and Control Systems Engineering Branch, and the Real-Time Software Engineering Branch. The Wallops portion of these branches is led by an Associate Branch Head, who reports to a Branch Head located at Greenbelt. Also located at Wallops is the Assistant Director of AETD/Wallops, who reports to the Director of the AETD and helps coordinate the activities of the branches and serves as a liaison to AETD customers. There are currently approximately 90 civil servant personnel located in the AETD/Wallops. The principal purpose of the AETD organization at Wallops is to provide engineering support to the Wallops programs.

The AETD branches perform the following functions:

- Carrier Systems Branch: Provides mechanical design, analysis, testing, and fabrication expertise for orbital and suborbital flight projects.

- Electrical Systems Branch: Designs and develops orbital, suborbital, and carrier electrical systems. Develops mission critical range instrumentation systems by employing new technology insertion to meet the requirements of low earth orbit and suborbital flight projects.

- Microwave Systems Branch: Develops and implements flight and ground communications components, subsystems, and systems in support of the tracking and data acquisition requirements of GSFC low earth orbit and suborbital flight projects.

- Guidance Navigation, and Control Systems Branch: Provides technical expertise to customers in the areas of Guidance, Navigation, and Control (GN&C) Systems Engineering, flight dynamics analysis, GN&C components and hardware, and propulsion. Pursues technology development activities in support of NASA programs, industry partners, and universities.

- Real-Time Software Engineering Branch: Provides expertise in the design, development, and evaluation of data systems and software for ground, flight, operational, administrative, simulation, and research and development purposes in support of GSFC Projects.

AETD personnel have provided significant contributions to the accomplishments of the Wallops projects which are described in the preceding sections of this report. In addition to the numerous technical contributions already described, AETD personnel have effectively supported the reorganization. Working relationships with Greenbelt personnel within similar disciplines have been established to take advantage of synergies. Relationships have also been fostered with new organizations at Wallops, both within the AETD and in other Directorates. Efforts to identify and address critical staffing and skill needs, facility and equipment needs, and technology needs have been initiated.

Maintaining a viable workforce required to support Wallops Mission 2000 is the primary challenge faced by the AETD/Wallops. Skill mix problems exist due to a shortage of engineers and expertise in particular areas required by new activities. A number of efforts are underway to address this issue, including pursuing hiring as possible to address critical needs, training activities, working with customers to understand and prioritize the detailed requirements of the Wallops Mission 2000 activities, and integrating the workforces at Wallops and Greenbelt.

Equipping of the workforce with labs required to properly support the programs and technology efforts performed at Wallops represents an additional challenge. A determination of the requirements for these labs and the subsequent capital investment plans is expected to be performed during FY 1999.

It is expected that the benefits of synthesizing the Wallops discipline engineering personnel into a single organization will be realized to a greater extent in the future as the initial challenges are overcome. The benefits of the synergies which have been created, as well as the focus on technology and equipping the workforce will enable Wallops to successfully implement the goals of Wallops Mission 2000.

6.0 OTHER KEY THRUSTS

6.1 Educational Outreach

6.1.1 Original Goals

An increased emphasis on educational outreach was one of the four key mission elements under Wallops Mission 2000. The following initiatives were identified to accomplish this:

- Enhancing student launch opportunities.
- Encouraging the use of sounding rockets in educational initiatives.
- Developing interactive web sites.
- Developing educational opportunities for students in partnership with the VCSFA.

6.1.2 Accomplishments

The following educational outreach activities were accomplished:

- The Space Flight Academy at Virginia's Eastern Shore was conducted as a joint effort between NASA, the Virginia Space Flight Center, Old Dominion University, the Eastern Shore Economic Development Commission, and the Navy AEGIS Combat Systems Center. This week-long residential camp was conducted in July 1998, and included model rocket building/launching, workshops, simulated launch missions, and a simulated Naval operation. The camp was attended by 28 middle school students from Virginia, Maryland and Pennsylvania.
- Wallops, in conjunction with the Office of Human Resources and Education at NASA Headquarters conducted a pilot program to provide suborbital rocket flights for experiments designed and built by high school students. As part of the Suborbital Student Experiment Module (Sub-SEM) program, student teams took part in a variety of activities for one week at Wallops in May 1998.
- Wallops and the University of Maryland Eastern Shore instituted the Bridge Program in the summer of 1998. The program is designed to provide incoming freshman students hands-on experience in engineering and Earth science activities. As part of the program, 17 students spent two afternoons a week for five weeks at Wallops.
- Under the Student Launch Program, three scientific balloon missions and one sounding rocket mission were successfully conducted.
- Wallops hosted, for the first time, a week-long NASA Education Workshop in July 1998. Twenty-five teachers from the eastern United States took part in workshops on Wallops activities that provided them with valuable information for use in the classroom. Prior to coming to Wallops, the teachers spent a week at Goddard-Greenbelt.
- Wallops conducted a pilot program in September 1998 called FreeSPACE. This program is designed to use small segments of large sounding rockets payloads to carry autonomous student experiments.
- Two Space Experiment Modules (SEMs) carrying a variety of student experiments, including those from four local academic organizations, flew on STS-95 in May 1998.
- Wallops continued existing educational programs including student internships, teacher internships and visits to local classrooms. NASA Wallops saw a 54 percent increase in the number of educational outreach programs and a 70 percent increase in on-site programs conducted in FY 1998 compared to FY97.

6.1.3 Future Plans

– The Space Flight Academy at Virginia's Eastern Shore will be expanded to three one-week sessions during the summer 1999. The plan is to develop the program incrementally into a year-round operation by 2003.
– Conduct a pilot program to integrate both the Sub-SEM and SEM systems into the NASA Student Involvement Program (NSIP). The purpose of the pilot, which will include schools in the northeastern United States during the 1998-99 school year will be to develop the selection process. The pilot also includes an NSIP week at Wallops in August 1999 which will include a Sub-SEM launch and SEM experiment development. The Sub-SEM and SEM portions of the NSIP will go to national competition beginning in the 1999-2000 school year.
– Conduct three sounding rocket launches in FY99 under the Student Launch Program.
– In a joint effort with the Virginia Space Flight Center, provide a suborbital flight for three experiments from Virginia high schools on the Sub-SEM. This flight is targeted for August 1999.
– Provide three SEMs for Space Shuttle flights in FY99.
– Develop FreeSPACE into an operational program.
– Conduct the Bridge Program in summer 1999.
– Expand and develop educational materials available to the public via the Wallops home page.
– Conduct a week long NASA Education Workshop in July 1999 and explore other opportunities for teacher workshops in FY99.

6.1.4 Issues/Concerns

A need for facilities to conduct educational workshops and on-site student and teacher programs is a major issue. Currently, the ability to conduct programs is based on the availability of large conference rooms. In addition, the need for on-site lodging is needed for summer programs because of the unavailability of rooms in the commercial market.

6.2 New Business

6.2.1 Original Goals

The Wallops Mission 2000 Implementation Plan defined business development as a primary thrust for Wallops. New business development efforts are principally led by the Policy and Business Relations Office in the Suborbital Porjects and Operations Directorate and specific tasks in support of expanding business opportunities are identified in Section 5.6.1. This section provides a discussion of specific new business initiatives.

6.2.2 Accomplishments

During the past year, significant steps have been taken to improve WFF new business opportunities through a more aggressive program of seeking opportunities and promoting capabilities. Specific accomplishments related to improving business opportunities are detailed in Section 5.6.2. These efforts are making an impact as evidenced by the growth in the new NASA, DoD, and commercial inquiries concerning potential Wallops support. Commercial activities are addressed in Section 6.3. Non-commercial FY98 highlights included:

- Development of a project plan for the conduct of frequent low-cost microgravity sounding rocket missions in response to a request from MSFC. Discussions with MSFC also included the possibility of developing a balloon-borne drop capsule.
- Support of preliminary planning for several of the MSFC Bantam Program, Cycle 1 winners. Universal Space Lines and SUMMA Technologies selected WFF as a proposed launch site for new expendable launch vehicle operations.

- Preliminary discussions and safety analysis for a potential NASA mission aboard an EER Systems Conestoga expendable launch vehicle. EER Systems ultimately decided to terminate efforts to fly the Conestoga and this potential project did not mature.
- Development of a new relationship with the Army's Aberdeen Proving Ground. WFF provided launch range support to Aberdeen for several gun-launched projectile operations. Aberdeen estimates the need to perform similar operations four or more times annually.

6.2.3 Future Plans

Wallops will continue to pursue improvement in business development processes and the trend of growth in business inquiries is expected to continue over the next year. Major new FY99 project initiatives will include:

- Support of the LaRC Pathfinder X project, proposed under NASA's Future X program. Plans include drop model testing and suborbital launch vehicle testing. LaRC and the Norfolk Naval Shipyard also are interested in performing a test program at WFF to demonstrate the benefits of catapulted launch vehicles as part of the Bantam program.
- Continued support to MSFC as plans for launch vehicle technology development in support of Bantam evolve.
- Deployment of mobile instrumentation and personnel to support flight test operations of the X-33 program.
- Preparation for support of flight test operations of the X-34 program.
- Operational planning for mobile launch range support of the NASA Vegetation Canopy Lidar mission scheduled for launch aboard an Athena 1 from Kodiak Island, AK in early 2000.
- Continued launch range support for WFF tenant organizations.
- Implementation of new "partnership" alliances with the new NSROC and CSOC contractors to attract new business.

6.2.4 Issues/Concerns

A principal interest in new business development is to help offset NASA costs at Wallops. As a result of federal regulations precluding augmentation of appropriated funding, new business developments frequently provide limited financial benefits.

6.3 Commercial Development

6.3.1 Original Goals

An increased emphasis on commercial development was one of the four key mission elements under Wallops Mission 2000. The following initiatives were identified to accomplish this:

- Foster growth of the commercial development of space.
- Promote the development of a commercial orbital launch complex.

6.3.2 Accomplishments

WFF continued its strong support of the commercial industry during FY98. Major accomplishments included:

- Launch range support was provided for two commercial Pegasus missions, each deploying eight Orbcomm satellites.
- GSFC and the Virginia Commercial Space Flight Authority (VCSFA) entered into Space Act and Commercial Space Launch Act Subagreements. These documents completed the administrative processing necessary for VCSFA to construct a new launch complex for expendable launch vehicles, and

to enter into individual mission agreements to enlist NASA support for launch operations and institutional support.

- VCSFA requested that NASA manifest the launch of nine Lockheed Martin Athena 2 launches from WFF beginning in late 2000. These launches are contingent upon Lockheed' s winning of an expected contract later this year.
- WFF and VCSFA were selected as the sole U.S. launch and recovery site for a commercial microgravity orbital program known as COMCAP. This endeavor is the product of an international consortium of companies including Instrumentation Technology Associates, Daimler Benz, Eurockot, and Intospace.
- Technical and costing information was prepared for inclusion in a VCSFA proposal to the USAF for launch operations support for the USAF/Weber State University JAWSAT satellite.
- Discussions with Kelly Aerospace were conducted during FY98. Kelly is developing a suborbital reusable launch vehicle (RLV) to support target missions for DoD and an orbital RLV for launch of commercial satellites. Kelly expressed strong interest in use of WFF launch range services and use of the Research Airport facilities for the housing and operation of the RLVs.
- Both directly and through VCSFA, WFF participated in discussions with numerous commercial organizations concerning potential space launch missions. Among these organizations are Microcosm and Space America.
- Support was provided to several commercial general aviation aircraft manufacturers for water ingestion tests conducted at the Wallops Research Airport.

6.3.3 Future Plans

Future plans to increase commercial activities at the WFF include:

- Continue support to Orbital Sciences Corporation through launch range support of 2-3 Pegasus missions annually.
- Continue to address individual inquiries/prospects for potential new commercial business. These inquiries are expected to continue to come from VCSFA as well as directly from commercial entities.
- Support the Commonwealth of Virginia effort to establish the Wallops area as a VentureStar launch site. If successful, Wallops would be requested to provide operational and institutional services on a cost reimbursable basis.

6.3.4 Issues/Concerns

The ability of Wallops to secure commercial launch business, as well as some proposed NASA missions, is presently hindered by several facility related issues. These include:

- The heights of NASA spacecraft processing facilities.
- The weight and width capacity of the Wallops Island bridge.

Due to the lack of a sustained NASA requirement, NASA funding for improvements in these areas are not presently being pursued. If a strong NASA or commercial requirement becomes evident, funding options will be explored.

6.4 Technology

6.4.1 Original Goals

Technology is an important element of the NASA and GSFC mission. Technology is one of the three major areas of responsibility defined in the Goddard Strategic Implementation Plan. The Wallops Mission 2000 Implementation Plan identifies technology insertion and demonstration support as a major role for Wallops. As an operational test site for the next generation of low-cost launch technologies, Wallops will develop technology in support of the launch range and the various projects described in the Mission 2000 plan.

Technology development efforts listed in the Mission 2000 plan are described below:

– Major research and technology activities involve the development of a 100-day balloon capability. The development of the Ultra-Long Duration Balloon (ULDB) requires technology development involving advanced materials and structural design, and development of power, telemetry and command, and attitude control support systems. Partnering activities are also planned by the Balloon Program to support planetary exploration.

– Technology development efforts to increase range efficiencies and lower costs are also described in Wallops Mission 2000. Development of technology to improve recovery techniques is planned to increase the sounding rocket launches from Wallops.

– Wallops Mission 2000 also describes plans for technology development in support of sounding rocket systems, orbital tracking ground stations, SPARTAN Lite, and Observational Science Branch activities.

6.4.2 Accomplishments

ULDB technology activities have been initiated with progress to develop the optimal balloon material and structural configuration. In addition, preliminary design of electrical systems, communication systems, and gondola and antenna pointing systems is underway. The ULDB development is behind the schedule identified in the Mission 2000 plan. This delay is in large part due to staffing shortages resulting from the delay in the NSROC award schedule, as well as temporary delays due to personnel changes.

Several studies have recently been initiated to lower range costs and increase Wallops launch activities. Required technology activities associated with these studies are not completely defined.

Sounding Rocket technology developments have generally continued through the period in areas such as GPS, data handling and real time support systems. Wallops involvement in SPARTAN Lite technology efforts will be defined when a SPARTAN Lite is selected.

Several safety development activities relating to real-time systems, safety software development have been initiated.

6.4.3 Future Plans

Technology efforts identified in Wallops Mission 2000 will continue in the future. In addition, a Wallops technology plan will be generated. This plan will ensure coordination of technology efforts by Wallops' organizations, and will define how technology needs for Wallops programs will be assessed, prioritized, and satisfied.

The Wallops technology plan is expected to:

- Establish a technology advocate (individual/board) for the Wallops Flight Facility
- Conduct program/science office technology needs assessments
- Coordinate with engineering center technology plans
- Establish user (science/range etc.) advocacy
- Establish funding plan
- Identify partnering opportunities
- Assess long and short-term benefits to WFF for proposed technology
- Provide follow-up for technology development efforts
- Prioritize technology activities
- Establish an understanding of how WFF technology developments and projects may involve Greenbelt Engineering Center partnering.

- Establish an understanding of how GSFC technology developments and projects may involve Wallops Engineering Center partnering.
- Establish a WFF staffing tool so that technology efforts can be well coordinated with operational program activities.

6.4.4 Issues/Concerns

Although new technology activities have not been well coordinated in the past, plans defined in this section are expected to increase the effectiveness of Wallops' technology efforts. Challenges that will need to be addressed include the proper prioritization of technology efforts with other program requirements to ensure the proper balance exists. Immediate program requirements should not completely remove resources from technology efforts, the benefits of which are often longer-term. Also, immediate program requirements should not be ignored due to technology efforts. A second challenge is the identification of resources to perform new technology. It is expected that Wallops programs will provide some resources, however, other funding sources and partnering opportunities will be explored. These challenges will be addressed during FY 1999 by the Wallops technology plan.

6.5 Training

The Wallops Mission 2000 Implementation Plan identified various engineering shortages and skill imbalances among the Wallops workforce. To refocus and equip the Wallops workforce to support Wallops Mission 2000 initiatives, various training activities were conducted. These activities included the initiation of the Wallops Refocusing Initiative, various on-site training courses, and efforts to provide on-the-job training for personnel supporting new projects.

6.5.1 Wallops Refocusing Initiative

The Wallops Refocusing Initiative (WRI) is a training program that provides the opportunity for civil servant employees to pursue an engineering degree or other AST qualifying degree leading to potential placement in an AST position at Wallops. GSFC has partnered with the University of Maryland Eastern Shore (UMES) to offer courses on-site at Wallops, leading to an undergraduate degree in software engineering, mechanical engineering, or electrical engineering. The WRI Program also allows civil servant employees to apply to other universities with proper approvals. Participants will attend school on a full-time or part-time basis when permitted by their manager.

The objectives of the WRI Program are to:

- Enable successful completion of a bachelor's degree in an AST qualifying curriculum, allowing employees the opportunity to contribute to the accomplishment of Wallops' research and support mission and to meet the anticipated engineering shortage identified in the Wallops Mission 2000 Implementation Plan.
- Provide growth opportunities to employees seeking to develop the requisite knowledge and skills for transitioning into the field of aerospace technology.

Although a NASA program, coordination with Wallops contractors and partners has been conducted to allow a greater number of courses to be offered on-site at Wallops. The WRI Program began in August, 1998, with a number of enthusiastic participants.

6.5.2 On-site Training

A number of on-site training courses were offered at Wallops during the past year to address needs identified in the Wallops Mission 2000 Implementation Plan. Courses conducted on-site included such areas as Space Systems, Labview, Payload Safety Review and Analysis, In-House Dynamics, and ISO 9000. Coordination among Wallops organizations was performed to maximize the availability of on-site courses.

6.5.3 On-the-Job Training

On-the-job training for Wallops personnel was conducted to provide the skills and knowledge necessary to support new projects. In particular, personnel began supporting GAS and SEM activities at Greenbelt and the Kennedy Space Center. These activities included integration and de-integration of GAS and SEM components and experiments, installation into the Shuttle, removal from the Shuttle, astronaut briefings, safety activities, and quality control activities.

6.5.4 Future Plans

Efforts to train Wallops personnel to face the challenges of supporting the Wallops Mission 2000 initiatives will continue to carry a high priority in the future. A comprehensive training assessment to identify needs and training solutions will be accomplished by February/March 1999. In addition, coordination among the various organizations located at Wallops, including contractor and partner organizations, will be increased to maximize training efficiencies and opportunities..

7.0 RESOURCES

Effective management of the resources at Wallops has remained a key challenge. The Center re-organization discussed in Section 3.0 resulted in a significant re-alignment of the civil servant employees at Wallops. While the overall FTE count remained stable, the new organizational structure required new working and management relationships. In spite of this, the appropriate organizations (‘ Team Wallops’) worked together to ensure that the civil servant workforce at Wallops was assigned as necessary to accomplish the goals of Wallops Mission 2000.

The ability of the organizations at Wallops to achieve their programmatic goals is largely impacted by effective use of the available workforce. While innovative management by ‘ Team Wallops’ has minimized the impact of existing shortfalls, these will pose a continuing challenge in the future. Specific needs and shortfalls are addressed in detail throughout this report and are highlighted in the issues discussed in Section 10.

‘ Team Wallops’ has also worked together to ensure that the programmatic requirements and goals in Mission 2000 are achieved by optimizing the utilization of limited fiscal resources. As with human resources, this remains a key challenge, and fiscal issues are addressed in detail throughout this report and are highlighted in the issues discussed in Section 10.

8.0 NEW STRATEGIC PARTNERSHIPS

One of the goals of Wallops Mission 2000 is that ‘ Wallops will be recognized as a role model for pioneering productive and innovative government, industry, and academic partnerships’ . To that end, NASA has pursued partnering arrangements with tenants and other users who have significant interest in the continued vitality of Wallops. Considerable progress has been made in establishing a solid framework for the Wallops partnership. Key accomplishments are highlighted below.

8.1 Wallops Board of Directors

A working group comprised of NASA and its key partners at Wallops was established in 1997 to prepare a Charter which described the goals and structure of the partnership. This charter was signed in May 1998.

The Wallops Partnership Charter provided a structure for the partnership, including an Executive Council, Senior Partners and Board of Directors. The Senior Partners have met officially three times to discuss

strategic issues and directions. The first official meeting of the Board of Directors since the signing of the Charter was conducted September 29, 1998.

Additionally, the Senior Partners established a working group to propose a new methodology for sharing institutional costs at Wallops. This working group will report its findings to the Board of Directors.

8.2 Virginia Commercial Space Flight Authority (VCSFA)

The VCSFA was chartered by the Commonwealth of Virginia in 1995 to foster economic growth in Virginia, by

- Promoting commercial launch opportunities from the Wallops Test Range
- Supporting and developing educational opportunities with NASA
- Providing facilities and services to launch service providers, spacecraft users, and other members of the aerospace community

In May 1998, NASA and VCSFA signed agreements enabling the VCSFA to build a commercial launch complex on Wallops Island. Construction on this launch facility began in March 1998, and an official ribbon-cutting ceremony hosted by the Governor of Virginia and attended by a Congressional delegation occurred on September 14, 1998. Phase 1 construction will be complete in October 1998, at which time the spaceport will be capable of supporting launches.

NASA and VCSFA personnel are actively meeting with potential commercial customers.

8.3 United States Navy

The U.S. Navy has several resident organizations at Wallops. As one of our key partners, NASA has been working with the Navy to identify innovative collaborations which benefit both organizations. In April 1998, NASA and Navy officials attended a ceremony celebrating the physical co-location of NASA and Navy health care services in one facility at Wallops. While no integration of health services is currently planned, this is one example of a highly successful collaboration between the two organizations. It has laid the groundwork for future discussions about collaborations in other areas.

8.4 Future Plans

There are numerous other examples of Wallops Partnership activities that have occurred throughout the past year, many of which have been discussed in previous sections of this progress report. These collaborative activities will continue to carry a high priority in the future. Additional key activities planned include:

- The establishment of two standing committees by the Board of Directors that will address cost issues and new business strategy on a continuing basis.
- The conduct of several employee forums for the entire Wallops workforce which will address key activities and issues for each of the Partner organizations.

9.0 KEY OBJECTIVES FOR FY99

Key objectives for FY99 were discussed in detail during the Strategic Planning Retreat. A list was prepared which included both programmatic and personnel-related objectives. Externally mandated objectives were also addressed (i.e., ISO 9000, Y2K, ODIN, full cost accounting, etc.). Many of the objectives cross organizational boundaries and will require joint efforts from multiple GSFC Directorates, Offices and Branches.

Objectives for each organization have been discussed in detail in previous sections. This section highlights the key FY99 objectives for ' Team Wallops' grouped into seven major focus areas. Successful accomplishment of these objectives is required in order to implement Wallops Mission 2000.

Programs and Operations

- Fully implement the transfer of mission management responsibilities for the GAS and SEM projects to Wallops.
- Implement a smooth transition to the NSROC and CSOC contracts.
- Develop a plan to modernize and streamline Test Range operation.
- Provide the necessary resources to ensure the success of the ULDB project.

Management Processes

- Develop and seamlessly integrate procedures for ISO9000 and ODIN.

Business Processes

- Implement institutional process improvements and cost sharing with partners.
- Streamline processes for executing reimbursable cost projects.
- Develop and implement a strategy for attracting new business to Wallops.
- Establish a New Business Committee at Wallops.

Workforce

- Develop a plan to improve the quality of life at Wallops.

Education

- Implement a coordinated approach to Education Outreach among the ' Team Wallops' organizations.

Technology

- Insure that the Y2K compliance of IT systems at Wallops is consistent with Government-wide schedules.
- Survey the needs of the ULDB program and user science community to define needs that can be satisfied by technology. Develop a plan for providing such to meet ULDB needs.
- Establish a technology forum at Wallops.

Infrastructure

- Identify the Facility modifications required to support new missions at Wallops.
- Develop an Environmental Assessment for tree-cutting at Wallops.
- Conduct an assessment of the WFF laboratory capability needed to support the future WFF program base. Develop a plan for obtaining such a capability or for leveraging the capability of others to meet WFF-based program needs.

10.0 ISSUES

Specific issues were addressed throughout this Progress Report as they related to the particular program or organization being discussed. This Section highlights those issues which either cross organization boundaries or are so significant that they must be dealt with aggressively in order to maximize the successful implementation of Wallops Mission 2000.

ISSUE # 1: Insufficient staffing available at Wallops to support programmatic and support requirements.

DISCUSSION # 1: As noted throughout this Progress Report, several programs have identified critical personnel shortfalls which are impacting their ability to accomplish Wallops Mission 2000 goals. The delays in awarding the NSROC and CSOC contracts have significantly contributed to this situation, due to the fact that civil servants supporting the sounding rocket and test range operations have not been transitioned to new projects in accordance with the plan outlined in the Wallops Mission 2000 Implementation Plan, thereby creating shortfalls in a number of critical programs.

RESOLUTION # 1: No immediate resolution is available. Civil servants will be reassigned as expeditiously as possible once the new contracts are awarded, but it is likely that the staffing problem will remain a key priority throughout FY99, requiring close coordination between the ' Team Wallops' organizations. This will require not only a clear focus on Wallops Mission 2000 key goals, but also diligent efforts in prioritizing work in order to maximize the utilization of the available workforce.

ISSUE # 2: Constrained budgets and insufficient travel funding to support programmatic and support activities planned in the Wallops Mission 2000 implementation Plan.

DISCUSSION # 2: Many of the initiatives addressed in the Wallops Mission 2000 Implementation Plan assumed that certain levels of funding would be available in FY98 to support critical activities. While many programs were affected, the lack of funding imposed the greatest impact on the ULDB development efforts and the transition activities associated with transferring mission management responsibility for Shuttle Small Payload and Spartan Projects to Wallops. The latter required a significant amount of OJT for Wallops personnel at Greenbelt and KSC. The lack of expected travel funding slowed the planned transition. While personnel at Greenbelt and Wallops coordinated closely to minimize the impact of the funding shortfall, the successful transfer of these responsibilities to Wallops will require extended travel in FY99.

RESOLUTION # 2: It is recognized that all organizations at Goddard are experiencing funding shortfalls, and Wallops organizations will continue to exhaust all avenues to secure needed programmatic funding. The travel funding issue remains difficult due to the geographic separation of the Greenbelt and Wallops campuses. Though innovative ways will be pursued to accomplish the OJT required to successfully accomplish the transfer to Wallops of management responsibilities for the Shuttle Small Payloads and Spartan Projects, this transition will continue to be impacted unless sufficient priority is given to this travel requirement.

ISSUE # 3: Assuring that the budget used to manage the Test Range is not lost as a result of reallocation of funding to the flight projects under Full Cost Accounting.

DISCUSSION # 3: Operating a successful test range requires a well-trained team of experienced professionals who are able to handle both the safety and mission requirements of a widely diverse group of range customers. A project pays for the services of this team only during the execution its mission. Therefore, even though the test range may support a number of projects and customers throughout the year, there will still be time during which the range team will not be actively supporting any specific mission. If the cost of this ' down time' were shared among the projects and customers in any given year, the resultant cost of using the Wallops Test Range would not be competitive (i.e., potential customers would go elsewhere). Because of the nature of the test range operations and the vital need to maintain that capability at Wallops, alternative funding sources must be sought to ensure that the cost of doing business at Wallops is competitive with other test ranges.

RESOLUTION # 3: Wallops management will pursue continued block-funding for the Test Range through NASA Headquarters.

ISSUE # 4: Streamlining the processing of agreements/funding for reimbursable customers.

DISCUSSION # 4: The time required for end-to-end processing of reimbursable orders is excessive. It is the source of repeated criticisms from NASA Wallops tenants and customers. The ability of Team Wallops to deal effectively with current tenants and customers, as well as its ability to aggressively expand the customer base at Wallops, demands that the process for handling reimbursable orders be streamlined in order to allow an efficient and expedient manner for dealing with organizations seeking the use of Wallops resources.

RESOLUTION # 4: A study team, comprised of Codes 100, 150, 200 and 800, is discussing a streamlined approach for the end-to-end processing of reimbursable orders.

ISSUE # 5: Implementation of a 25% reduction in the 314-50 budget by SOMO.

DISCUSSION # 5: This budget supports the development activities and sustaining engineering for test range instrumentation systems. It is imperative that these systems be maintained and upgraded to ensure a high level of service for Wallops test range users.

RESOLUTION # 5: Ensure that a sufficient level of priority is given by SOMO to maintaining peak performance for the instrumentation systems, as well as providing upgrades consistent with the available technology.

ISSUE # 6: Clarification of CSOC operations at Wallops.

DISCUSSION # 6: There is confusion regarding how the implementation of CSOC will affect normal operations at Wallops. It is important that the transition to CSOC does not negatively impact the ability to provide consistent, professional services to Wallops customers.

RESOLUTION # 6: A team has been identified to determine the implications of CSOC and address areas of potential conflict.

ISSUE # 7: The current trend of reducing capitalization and operating budgets.

DISCUSSION # 7: If this trend continues, the existing infrastructure and institutional services at Wallops will not keep pace with future programmatic needs. This could impact future operations and business opportunities.

RESOLUTION # 7: The infrastructure requirements at Wallops must be given a high priority in upcoming budget discussions.

11.0 CONCLUSIONS

The Strategic Planning Retreat provided an effective forum for addressing the near- and long-term goals and challenges facing Wallops. While much effort had been expended in the past year to address the challenges identified in the original Implementation Plan, it became clear during the retreat that these would remain key challenges in the upcoming year as well. These challenges include:

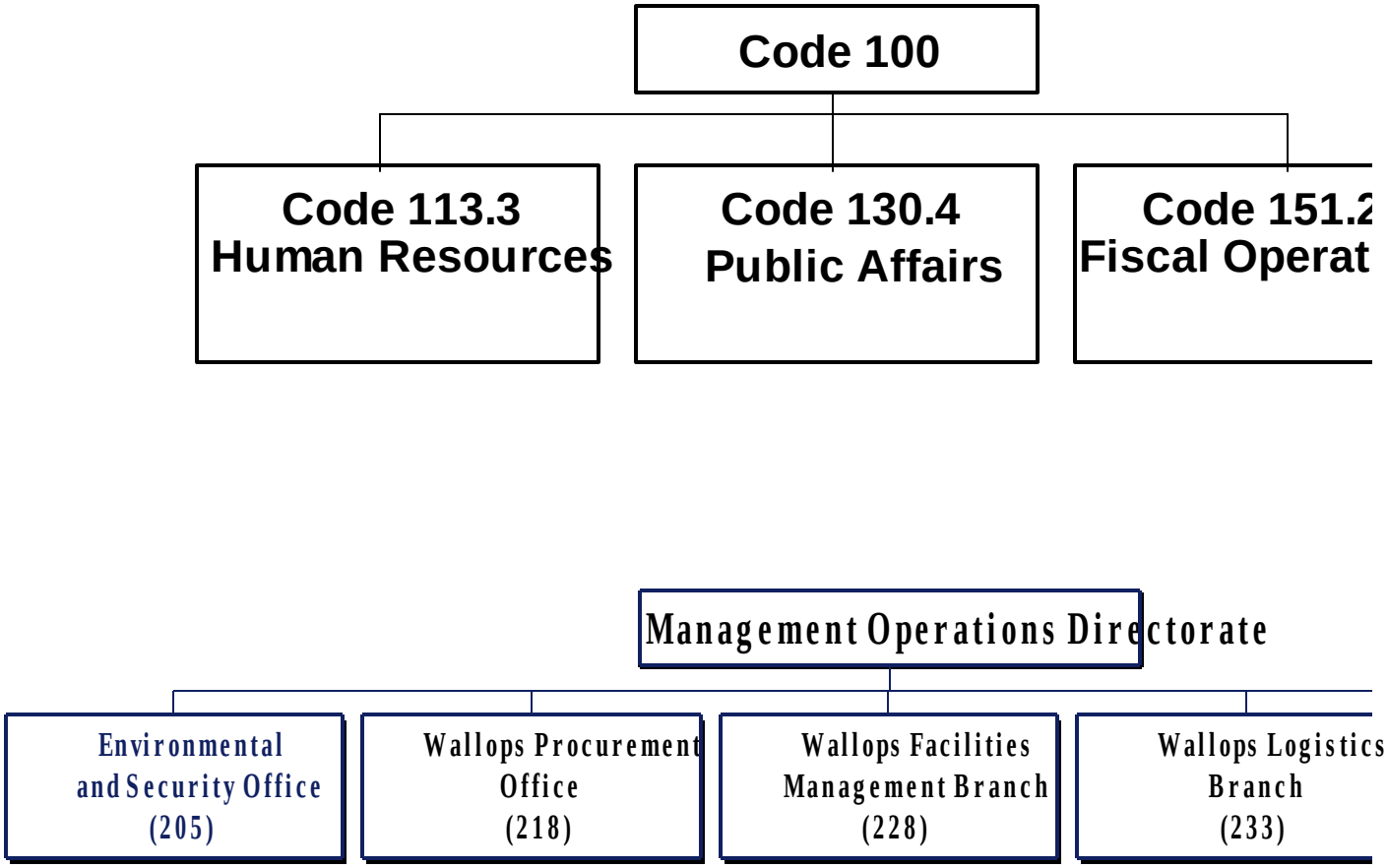
- Successfully conducting current programs while transitioning to the new programs.
- Implementing the Sounding Rocket Program so that the current level of scientific research is maintained as future budgets are reduced.
- Matching new job requirements with available staffing skills and retraining the workforce for the new job requirements.
- Matching the schedule for new activities with the availability of staffing.

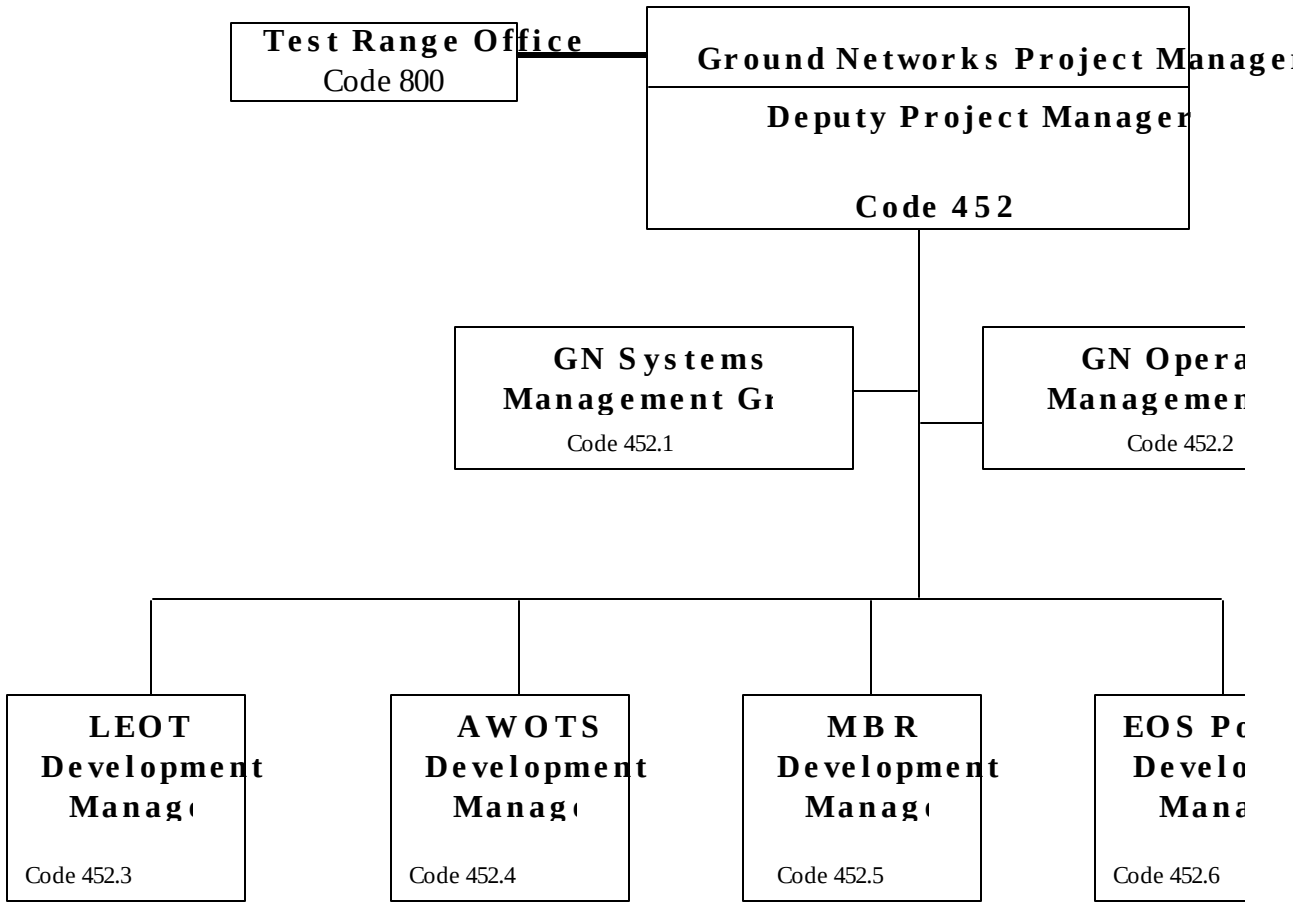
- Maintaining adequate and stable fund sources for the Test Range (Launch Range and Airport).
- Remaining competitive following implementation of full-cost accounting practices.

The information provided in this Progress Report clearly shows that much progress has been made in the past year in accomplishing the goals laid out in the Wallops Mission 2000 Implementation Plan. Team Wallops has initiated several new projects and is awaiting the execution of several new contracts which will affect key Wallops programs. Additionally, much progress has been made in the areas of educational outreach, commercial expansion and the establishment of a fully effective Partnership for all key organizations at Wallops.

Team Wallops recognizes the need to evolve its role to ensure that Wallops remains a national resource able to provide a broad range of services to a diverse group of government, commercial and academic customers, and stands ready to take on new challenges in the next year.

Appendix A : NASA/GSFC/Wallops Flight Facility Organizational Charts

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GN Systems
Management Gr
Code 452.1
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Managemer
Code 452.2
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Manag
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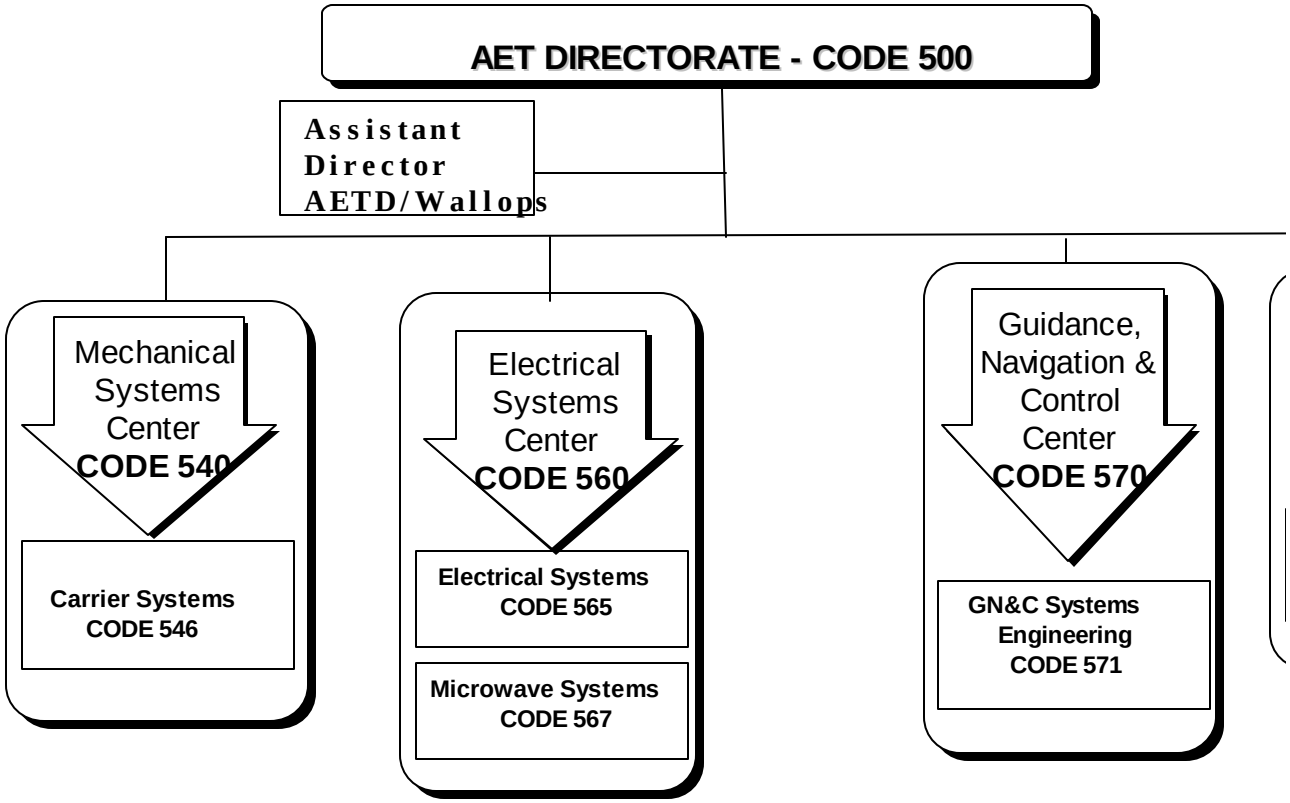
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Assistant Director AETD/Wallops
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Carrier Systems CODE 546
Electrical Systems Center CODE 560
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Microwave Systems CODE 567
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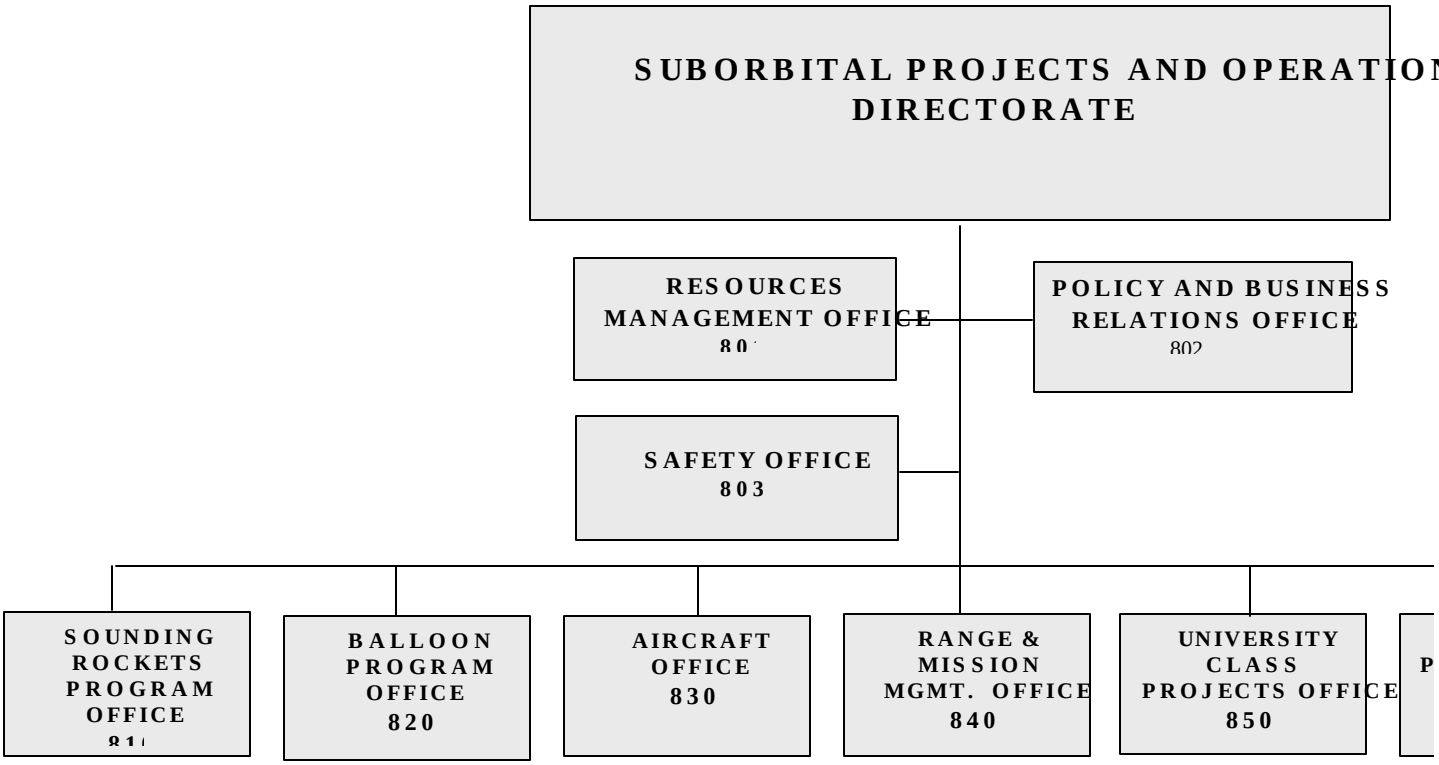
GN&C Systems Engineering CODE 571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POLICY AND BUSINESS RELATIONS OFFICE
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SAFETY OFFICE
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SOUNDING ROCKETS PROGRAM OFFICE
810
BALLOON PROGRAM OFFICE
820
AIRCRAFT OFFICE
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RANGE & MISSION MGMT. OFFICE
840
UNIVERSITY CLASS PROJECTS OFFICE
850